

## **REMARKS**

### **I. Status Of Application**

Claims 1-30 are pending in the application; the status of the claims is as follows:

Claims 3, 4 and 7 are allowed;

Claims 19-22, 25 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form;

Claims 1, 2, 5, 6, 8-11, 13, 16, 18 and 28-30 are rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,515,080 to Nakamura et al (hereinafter "Nakamura") in view of U.S. Patent No. 6,317,189 to Yuan et al (hereinafter "Yuan");<sup>1</sup>

Claim 15, 23, 24 and 26 are rejected under 35 U.S.C. § 103(a) over Nakamura in view of Yuan, and further in view of U.S. Patent No. 5,133,076 to Hawkins (hereinafter "Hawkins"); and

Claims 12, 14 and 17 are rejected under 35 U.S.C. § 103(a) over Nakamura and Yuan in view of U.S. Patent No. 5,757,365 to Ho (hereinafter "Ho").

By this Amendment, claims 1, 21, 28, and 30 have been amended to correct minor grammatical errors.

### **II. Drawings**

To date, no Notice of Draftsperson's Patent Drawing Review has been received. Applicants respectfully request receipt of this document when it becomes available. Please note that the original drawings filed in the patent application are "formal" drawings.

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<sup>1</sup> The present Office Action indicates (para. 1, line 1) that claims 3, 4 and 7 are also rejected under § 103(a) over Nakamura and Yuan, however this is believed to be a clerical error since there is no further mention of claims 3, 4 and 7 in the discussion of this § 103 rejection and since the Office Action indicates (Office Action Summary, lines 5-7, and Detailed Action, para. 9-10) that claim 3 and 4 are allowed and claim 7 is allowable.

### **III. Claim Objections**

The objection to claims 19-22, 25 and 27 as being dependent upon a rejected base claim, but allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, is noted. However, the independent claims from which these claims depend are considered to be in condition for allowance. In particular, it is respectfully pointed out that claims 21 and 22 depend from claim 7, which is indicated in the present Office Action as being allowed. Accordingly, rewriting claims 19-22, 25, and 27 in independent form would involve unnecessary expense and effort.

Therefore, it is respectfully requested that the objection to claims 19-22, 25 and 27 be reconsidered and withdrawn.

### **IV. 35 U.S.C. § 103(a) Rejections**

#### **A. Claims 1, 2, 5, 6, 8-11, 13, 16, 18 and 28-30**

The rejection of claims 1, 2, 5, 6, 8-11, 13, 16, 18 and 28-30 under 35 U.S.C. § 103(a) over Nakamura in view of Yuan is respectfully traversed based on the following.

#### **1. *Claims 1, 2, 5, 6, 8-11 and 13***

Claims 2, 5, 6, 8-11, and 13 depend from claim 1. Claim 1 is directed to a liquid crystal display device and recites *inter alia*:

- a driving circuit which performs writing on the liquid crystal display;
- a power supply circuit which supplies electric power to the driving circuit; and
- a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display.

Thus, claim 1 is directed to an LCD device comprising a controller for inactivating at least part of a power supply circuit which supplies electric power to an LCD driving circuit.

Nakamura is directed to an LCD device comprising an LCD 37, an LCD controller 24, a VRAM 25, and a power supply 30. The LCD controller 24 provides readout data to the LCD 37, and the power supply 30 supplies electric power to the LCD controller 24. However, Nakamura is silent with regard to a controller which inactivates at least part of the power supply 30 after writing on the LCD 37.

Nevertheless, the present Office Action alleges that Nakamura discloses “a controller which inactivates at least part of the power supply circuit...after writing on the liquid crystal display in figure 3 and column 5, lines 66-67 and column 6, lines (sic) 1-37.”<sup>2</sup> This allegation is respectfully traversed. Fig. 3 of Nakamura shows a block diagram of a VRAM read timing controller 45, which is one of the components of the display controller 24, and which “controls read timings for reading out display data from the VRAM 25 so as to perform read operations at predetermined time intervals.”<sup>3</sup> The cited passage of Nakamura from col. 5, line 66 – col. 6, line 37 is a detailed description of Fig. 3. However, these cited portions of Nakamura do not disclose anything related to the controller recited in claim 1.

For instance, even if components of the VRAM read timing controller 45 are signaled to go into a sleep mode, this may reduce the rate at which power is being drawn from the power supply 30, but it is certainly not the same as deactivating all or part of the power supply 30. On this note, the present Office Action alleges that since “counters 85, 87, 89 and 91 of figure 3 are sent a sleep signal, wherein the counters do not use any power[,]. . . part of the power supply circuit is deactivated while these are in sleep state.”<sup>4</sup> However, this allegation is respectfully traversed. Applicants respectfully point out that simply removing a load from a power supply (e.g., counters 85, 87, 89, and 91 removed from power supply 30) does not cause all or part of the power supply to be deactivated. While removing the load may reduce the amount of work required by the power supply, the power supply remains active such that additional loads may be added from elsewhere

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<sup>2</sup> Office Action, page 2, lines 18-21 (June 25, 2002).

<sup>3</sup> Nakamura, col. 4, line 67 – col. 5, line 2.

<sup>4</sup> Office Action, page 10, lines 13-15 (June 25, 2002).

in the system. In a case where all or part of a power supply is deactivated, the deactivated portions are unavailable for use from any load until reactivation.

Therefore, Applicants maintain that Nakamura fails to disclose or suggest “a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display.” Also, while it is acknowledged that the present rejection is based on a combination of Nakamura and Yuan, it is noted that, since Nakamura fails to disclose or suggest all of the limitations of claim 1, Nakamura cannot anticipate or render obvious claim 1, or claims 2, 5, 6, 8-11, and 13 which depend from claim 1. As will be discussed next, Yuan fails to provide for the deficiencies of Nakamura with respect to the present rejection.

Yuan is directed towards a reflective-type liquid crystal display and provides no disclosure related to liquid crystal display controllers. Therefore, like Nakamura, Yuan fails to disclose or suggest “a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display.” Therefore, while it is acknowledged that the present rejection is based on a combination of Nakamura and Yuan, it is noted that, since Yuan fails to disclose or suggest all of the limitations of claim 1, Yuan cannot anticipate or render obvious claim 1, or claims 2, 5, 6, 8-11, and 13 which depend from claim 1.

With regard to the proposed combination of Nakamura and Yuan, as pointed out above, both Nakamura and Yuan fail to disclose or suggest “a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display.” Therefore, if one skilled in the art were to combine the teachings of Nakamura and Yuan, the resulting combination would still fail to disclose or suggest “a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display.” Thus, since the proposed combination of Nakamura and Yuan fails to disclose or suggest all of the limitations of claim 1, the proposed combination cannot render obvious claim 1, or claims 2, 5, 6, 8-11, and 13 which depend from claim 1.

**2. Claims 16 and 18**

Claim 18 depends from claim 16. Claim 16 is directed to a method for driving a liquid crystal display device and recites *inter alia*:

after writing on the liquid crystal display, inactivating at least part of a power supply circuit which supplies electric power to a driving circuit which performs writing on the liquid crystal display.

Thus, claim 16 recites some limitations that are similar to those discussed above with regard to claim 1. Therefore, the arguments presented above with regard to claim 1 apply equally to claim 16, so the combination of Nakamura and Yuan cannot anticipate or render obvious claim 16, or claim 18 which depends from claim 16, for at least the same reasons discussed above regarding claim 1.

**3. Claims 28-30**

Claims 29 and 30 depend from claim 28. Claim 28 is directed to a liquid crystal display device and recites *inter alia*:

a controller which inactivates at least part of the power supply circuit and/or at least part of an internal circuit of the data processing unit after writing on the liquid crystal display, thereby inhibiting electric power supply to the liquid crystal display.

Thus, claim 28 recites some limitations regarding inactivation that are similar to those discussed above with regard to claim 1. Therefore, the arguments presented above with regard to claim 1 apply equally to claim 28, so the combination of Nakamura and Yuan cannot anticipate or render obvious claim 28, or claims 29 and 30 which depend from claim 28, for at least the same reasons discussed above regarding claim 1.

Accordingly, it is respectfully requested that the rejection of claims 1, 2, 5, 6, 8-11, 13, 16, 18 and 28-30 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

**B. Claims 15, 23, 24 and 26**

The rejection of claims 15, 23, 24 and 26 under 35 U.S.C. § 103(a) over Nakamura in view of Yuan, and further in view of Hawkins, is respectfully traversed based on the following.

Claims 23, 24 and 26 depend from claim 15. Claim 15 is directed to a portable electronic device and recites *inter alia*:

a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display

Thus, claim 15 recites some limitations that are similar to those discussed above with regard to claim 1, so the arguments presented above with regard to claim 1 apply equally to claim 15. Therefore, while it is acknowledged that the present rejection is based on a combination of Nakamura, Yuan, and Hawkins, it is noted that the combination of Nakamura and Yuan cannot anticipate or render obvious claim 15, or claims 23, 24 and 26 which depend from claim 15, for at least the same reasons discussed above with regard to claim 1. As will be discussed next, Hawkins fails to provide for the deficiencies of the combination of Nakamura and Yuan with respect to the present rejection.

Hawkins is directed to a hand-held computer that includes a CPU 50, a liquid crystal display 12 and a display controller 64. Hawkins also discloses a system standby mode for the hand-held computer where, upon receiving a certain interrupt signal, the CPU 50 disables all other interrupts and saves the system state in a system RAM 67. However, Hawkins is silent with regard to inactivating at least part of a power supply circuit after writing on the liquid crystal display. Therefore, while it is acknowledged that the present rejection is based on a combination of Nakamura, Yuan, and Hawkins, it is noted that, since Hawkins fails to disclose or suggest all of the limitations of claim 15, Hawkins cannot anticipate or render obvious claim 15, or claims 23, 24 and 26 which depend from claim 15.

With regard to the proposed combination of Nakamura, Yuan, and Hawkins, as pointed out above, each of Nakamura, Yuan, and Hawkins fails to disclose or suggest “a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display.” Therefore, if one skilled in the art were to combine the teachings of Nakamura, Yuan, and Hawkins, the resulting combination would still fail to disclose or suggest “a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display.” Thus, since the proposed combination of Nakamura, Yuan, and Hawkins fail to disclose or suggest all of the limitations of claim 15, the proposed combination cannot render obvious claim 15, or claims 23, 24 and 26 which depend from claim 15.

Accordingly, it is respectfully requested that the rejection of claims 15, 23, 24 and 26 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

**C. Claims 12, 14 and 17**

The rejection of claims 12, 14 and 17 under 35 U.S.C. § 103(a) over Nakamura and Yuan in view of Ho is respectfully traversed based on the following.

***1. Claims 12 and 14***

Claims 12 and 14 depend from claim 1. Accordingly, the arguments presented above with regard to claim 1 apply equally to claims 12 and 14. Therefore, while it is acknowledged that the present rejection is based on a combination of Nakamura, Yuan, and Ho, it is noted that the combination of Nakamura and Yuan cannot anticipate or render obvious claims 12 and 14 for at least the same reasons discussed above with regard to claim 1. As will be discussed next, Ho fails to provide for the deficiencies of the combination of Nakamura and Yuan with respect to the present rejection.

Ho discloses a computer system having a low power consumption mode initiated by a power save controller 110. When the low power consumption mode is initiated, portions of a sequencer 86, a graphics controller 92, an attributes controller 94, and a look-

up table 96, which are all part of a display controller 14, are shut down. However, Ho is silent with regard to shutting down all or part of a power supply circuit as part of the low power consumption mode. Thus, Ho fails to disclose or suggest “a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display” as recited in claim 1. Therefore, while it is acknowledged that the present rejection is based on a combination of Nakamura, Yuan, and Ho, it is noted that, since Ho fails to disclose or suggest all of the limitations of claim 1, Ho cannot anticipate or render obvious claim 1, or claims 12 and 14 which depend from claim 1.

With regard to the proposed combination of Nakamura, Yuan, and Ho, as pointed out above, each of these references fails to disclose or suggest “a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display” as recited in claim 1. Therefore, even if one skilled in the art were to consider combining the teachings of Nakamura, Yuan, and Ho, the resulting combination would still fail to disclose or suggest a controller that “inactivates at least part of the power supply circuit after writing on the liquid crystal display.” Therefore, since the proposed combination of Nakamura, Yuan, and Ho fails to disclose or suggest all of the limitations of claim 1, the proposed combination of Nakamura, Yuan, and Ho cannot render obvious claim 1, or claims 12 and 14 which depend from claim 1.

## **2. Claim 17**

Claim 17 depends from claim 16. Accordingly, the arguments presented above with regard to claim 16 apply equally to claim 17. Therefore, while it is acknowledged that the present rejection is based on a combination of Nakamura, Yuan, and Ho, it is noted that the combination of Nakamura and Yuan cannot anticipate or render obvious claim 17 for at least the same reasons discussed above with regard to claim 16. As will be discussed next, Ho fails to provide for the deficiencies of the combination of Nakamura and Yuan with respect to the present rejection.

As pointed out above, Ho fails to disclose or suggest a controller that “inactivates at least part of the power supply circuit after writing on the liquid crystal display.” It is



equally true that Ho fails to disclose or suggest a step of “inactivating at least part of a power supply circuit which supplies electric power to a driving circuit which performs writing on the liquid crystal display” as recited in claim 16. Therefore, while it is acknowledged that the present rejection is based on a combination of Nakamura, Yuan, and Ho, it is noted that, since Ho fails to disclose or suggest all of the limitations of claim 16, Ho cannot anticipate or render obvious claim 16, or claim 17 which depends from claim 16.

With regard to the proposed combination of Nakamura, Yuan, and Ho, as pointed out above, each of these references fails to disclose or suggest a step of “inactivating at least part of a power supply circuit which supplies electric power to a driving circuit which performs writing on the liquid crystal display” as recited in claim 16. Therefore, even if one skilled in the art were to consider combining the teachings of Nakamura, Yuan, and Ho, the resulting combination would still fail to disclose or suggest a step of “inactivating at least part of a power supply circuit which supplies electric power to a driving circuit which performs writing on the liquid crystal display.” Therefore, since the proposed combination of Nakamura, Yuan, and Ho fails to disclose or suggest all of the limitations of claim 16, the proposed combination of Nakamura, Yuan, and Ho cannot render obvious claim 16, or claim 17 which depends from claim 16.

Accordingly, it is respectfully requested that the rejection of claims 12, 14 and 17 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

### **CONCLUSION**

In view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment does not increase the number of independent claims, does not increase the total number of claims, and does not present any multiple dependency claims. Accordingly, no fee based on the number or type of claims is currently due. However, if a

fee, other than the issue fee, is due, please charge this fee to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

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APPENDIX

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

The following is a marked-up version of the changes to the claims which are being made in the attached response to the Office Action dated June 25, 2002.

**IN THE CLAIMS:**

1. (Twice Amended) A liquid crystal display device comprising:  
a liquid crystal display which uses reflective type liquid crystal with a memory effect;  
a driving circuit which performs writing on the liquid crystal display;  
a power supply circuit which supplies electric power to the ~~driving circuit~~ driving circuit; and  
a controller which inactivates at least part of the power supply circuit after writing on the liquid crystal display.
9. (Once Amended) A liquid crystal display device according to claim 1, further comprising an operation section with which [an] a user is capable of making an input,  
wherein writing on the liquid crystal display is carried out in accordance with the input made with the operation section.
21. (Once Amended) A liquid crystal display device according to claim 7, wherein:  
the controller inactivates at least part of an internal circuit of at least one of the central processing units and keeps the remaining one(s) of the central processing units active.

28. (Once Amended) A liquid crystal display device comprising:  
a liquid crystal display which uses reflective type liquid crystal with a memory effect;  
a driving circuit which performs writing on the liquid crystal display;  
a data processing unit which is connected to the driving circuit; ~~circuit~~;  
a power supply circuit which supplies electric power to the driving circuit and the data processing unit; and  
a controller which inactivates at least part of the power supply circuit and/or at least part of an internal circuit of the data processing unit after writing on the liquid crystal display, thereby inhibiting electric power supply to the liquid crystal display.

30. (Once Amended) A liquid crystal display device according to claim 28, wherein:  
the ~~reflective~~ reflective type liquid crystal exhibits a cholesteric phase.